

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
HELENA DIVISION

STATE OF MONTANA,

Plaintiff,

vs.

TALEN MONTANA, LLC, f/k/a PPL
Montana, LLC, and NORTHWESTERN
CORPORATION, d/b/a NorthWestern
Energy, a Delaware corporation, and
UNITED STATES OF AMERICA,
United States Forest Service, United
States Bureau of Reclamation, and United
States Bureau of Land Management,

Defendants.

CV 16–35–H–DLC

FINDINGS OF FACT,
CONCLUSIONS OF LAW,
AND ORDER

I. INTRODUCTION

A 10-day bench trial was held in this case from January 4, 2022 to January 18, 2022, at the Russell Smith Federal Courthouse in Missoula, Montana. Plaintiff State of Montana (“Montana”) was represented by John E. Bloomquist, Esq., James P. Molloy, Esq., Betsy R. Story, Esq., and Anthony Johnstone, Esq. Defendant, Talen Montana, LLC (“Talen”), was represented by Robert L. Sterup, Esq., and Kyle A. Gray, Esq. Defendant, NorthWestern Corporation, d/b/a NorthWestern Energy (“NorthWestern”) was represented by Stephen D. Bell, Esq., Brian B. Bell, Esq., and Andy Brown, Esq. Defendant United States of America

(“United States”), was represented by J. Scott Thomas, Esq., and David W. Gehlert, Esq. Hundreds of exhibits were offered and received into evidence and a total of 15 expert witnesses were sworn and testified, and at the Court’s request, the parties submitted proposed findings of fact and conclusions of law, and post-trial briefs.

II. PROCEDURAL HISTORY

This case commenced in 2003, twenty years ago, when parents of school children filed a lawsuit in Montana Federal District Court seeking compensation to the school trust fund from PPL Montana, LLC (“PPL”), the predecessor in interest to Talen, based on the alleged occupation and use of state-owned riverbeds by hydroelectric dam facilities constructed and operating on the Missouri, Clark Fork and Madison Rivers of Montana (Am. Compl., *Dolan v. PPL Mont., LLC* (Cause No. CV 03-167-M-DWM)).¹

¹ There are seven hydroelectric dam facilities involved in this case: four on the Missouri River (Hauser, Holter, Black Eagle and Morony), two on the Madison River (Hebgen and Madison), and one on the Clark Fork River (Thompson Falls). Montana is claiming title to those portions of the historic riverbeds of the Missouri, Madison and Clark Fork Rivers between the ordinary low water marks, and between the upstream and downstream FERC boundaries of the aforementioned seven hydroelectric dam facilities. Montana’s expert Surveyor, Ken Jenkins, testified that these particular river reaches between the FERC boundaries are considered the “Disputed Reaches” which Montana claims title to under the Equal Footing Doctrine. As will be explained in later detail, the Court adopts expert Jenkins’ definition of these Disputed Reaches. The river segments within which these Disputed Reaches are located will be referred to as the “Relevant Segments.”

In general terms, this case, from its inception, concerns the ownership of the riverbeds underlying the hydroelectric dam facilities on these three iconic Montana rivers. Ownership of those riverbeds turns on whether the rivers, specifically Relevant Segments of the rivers, were navigable at the time Montana achieved statehood in 1889. *PPL Montana, LLC v. Montana*, 565 U.S. 576 (2012). Under the equal footing doctrine of the United States Constitution, upon admission to the Union, states take title within their boundaries to the beds of waters then navigable. *Id.* The United States retains title to the riverbeds that were non-navigable at the time of statehood. *Id.*

Montana claims that all of the Relevant Segments of these three rivers are navigable-for-title and therefore the State owns title to the riverbeds underlying the hydroelectric dam facilities, and thus seeks an order establishing title navigability of the Relevant Segments, and quieting title to the disputed riverbeds or reaches within those segments (“Disputed Reaches”). Defendants claim the Relevant Segments were not navigable at the time of statehood and that title remained vested in the United States or its successors-in-interest.

Following the filing of the original lawsuit in 2003, PPL moved to dismiss for lack of standing and federal preemption. Montana later intervened as a party plaintiff (Order Granting Motion to Intervene, *Dolan v. PPL Mont., LLC* (Cause No. CV 03-167-M-DWM)). Because the intervention of Montana destroyed

diversity between the parties, the Court dismissed the case for lack of jurisdiction. (Doc. 95-4.)

In November 2004, before the federal case was dismissed, PPL sued Montana in state court, seeking a declaration that Montana did not own the riverbeds underlying its hydroelectric dam facilities. (Doc. 17.) Montana moved for summary judgment on whether the rivers were navigable at the time of statehood. The state trial court granted Montana's motion for summary judgment. (Doc. 48.) After a seven-day bench trial on damages, the trial court entered final judgment in Montana's favor awarding approximately \$41 million in damages. (Doc. 108.)

PPL appealed the district court's decision, and the Montana Supreme Court affirmed. *PPL Mont., LLC v. State*, 2010 MT 64, 355 Mont. 402, 229 P.3d 421, *rev'd*, 565 U.S. 576 (2012). As explained next, the reasoning of the state trial court and Montana Supreme Court was flawed in multiple respects.

PPL successfully petitioned the U.S. Supreme Court for a writ of certiorari, and the Supreme Court reversed. *PPL Montana, LLC v. Montana*, 565 U.S. 576 (2012) (hereinafter "*PPL*" or "*PPL v. Montana*"). Because this opinion serves as the roadmap for this order, further discussion of the holdings in *PPL v. Montana* are warranted.

The Court began with an explanation of the equal-footing doctrine: Under the equal-footing doctrine of the United States Constitution, upon admission to the Union, states gain title within their boundaries to the beds of water then navigable. *Id.* at 591. When states obtain such title, they may allocate and govern those lands according to state law subject only to the United States’ power “to control such waters for purposes of navigation in interstate and foreign commerce.” *Id.* (quoting *United States v. Oregon*, 295 U.S. 1, 14 (1935)). Conversely, the United States retains title vested in it before statehood to land beneath waters not then navigable. *Id.* The Court stated that whether a river is navigable for title under the equal-footing doctrine depends on whether the river is navigable in fact. *Id.* at 592. The Court then articulated the standard which governs this case: “Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used or are susceptible of being used, in their ordinary conditions, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water.” *Id.* (quoting *The Daniel Ball*, 77 U.S. (10 Wall.) 557, 563 (1870), *superseded by statute in part on other grounds as recognized by Rapanos v. United States*, 547 U.S. 715, 723 (2006)). The Court stressed the navigability of a river must be based on its natural and ordinary condition at the time of statehood. *Id.*

Next, in addressing the deficiencies in the Montana Supreme Court's decision, the Court explained that "[t]he primary flaw in the reasoning of the Montana Supreme Court lies in its treatment of the question of river segments and overland portage." *Id.* at 593. The Court held that "[t]o determine title to a riverbed under the equal-footing doctrine, this Court considers the river on a segment-by-segment basis to assess whether the segment of the river, under which the riverbed in dispute lies, is navigable or not." *Id.* The Court emphasized that "the segment-by-segment approach to navigability for title is well settled, and it should not be disregarded." *Id.* at 594. The Court reasoned that "shifts in physical conditions [that affect navigability] provide a means to determine appropriate start points and end points for the segment in question," such as gradient changes and tributaries that provide additional flow. *Id.* at 595.

The Court held that "[i]n most cases," portages defeat a finding of navigability "because they require transportation over land rather than over the water." *Id.* at 597. The Court noted that a portage "demonstrates the need to bypass the river segment, all because that part of the river is nonnavigable." *Id.* Responding to the State's argument that small breaks in navigability do not render a river non-navigable, the Court stated that "[e]ven if the law might find some nonnavigable segments so minimal that they merit treatment as part of a longer, navigable reach for purposes of title under the equal footing doctrine, it is doubtful

that any of the segments in this case would meet that standard, and one—the Great Falls reach—certainly would not.” *Id.* at 596. The Court reasoned that such non-navigable segments would have to be so small as to be inadministrable for title purposes. *Id.* at 596-97 (“[T]he kinds of considerations that would define a *de minimis* exception to the segment-by-segment approach would be those related to principles of ownership and title, such as inadministrability of parcels of exceedingly small size, or worthlessness of the parcels due to overdivision.”). After laying out these principles, the Court held “that the 17-mile Great Falls reach, at least from the head of the first waterfall to the foot of the last, is not navigable for purposes of riverbed title under the equal-footing doctrine.” *Id.* at 599. In reaching this conclusion, the Court relied on the State’s concession that the Great Falls reach had never been navigated and were not passable by boat at statehood. *Id.*

Finally, the Court held that the Montana Supreme Court erred as a matter of law in its reliance upon present-day use of the rivers to support its navigability determination. *Id.* at 600. In order to rely on present-day use to establish navigability for title, a party “must show: (1) the watercraft are meaningfully similar to those in customary use for trade and travel at the time of statehood; and (2) the river’s poststatehood condition is not materially different from its physical condition at statehood.” *Id.* at 601.

The Court remanded the case for an assessment of the navigability of the Relevant Segments “in light of the principles discussed in” the Court’s opinion. *Id.* at 600.

Upon remand to the Montana state courts, the case was dormant for several years until the parties stipulated that Montana would be realigned as plaintiff, and Talen would be re-aligned as the defendant, and that the case would be bifurcated such that all claims or defenses relating to liability and navigability would be adjudicated first as “Phase I” of the proceedings, to be followed by damage claims and defenses in “Phase II.” Thus, in March 2016, Montana filed a Complaint on Remand against Talen, which had changed its name from PPL. Montana also joined NorthWestern as a defendant, which had purchased the hydroelectric dam facilities after remand. Despite the U.S. Supreme Court’s decision that the Great Falls Reach was non-navigable as a matter of law, the Complaint on Remand alleged ownership of the riverbeds on the Great Falls Reach. NorthWestern removed the case to this Court based on federal question jurisdiction and the Federal Quiet Title Act, and Montana moved to remand the matter to state court. This Court denied the motion to remand and retained jurisdiction. (Doc. 171.)

Once the jurisdiction issue was resolved, Talen and NorthWestern renewed their motions to dismiss the State’s claims on the Great Falls Reach. The Court granted the motions to dismiss the Complaint on Remand “to the extent that they

pertained to approximately 8.2 miles of the riverbed of the Missouri River between Black Eagle Falls and the Great Falls.” (Doc. 191.)

Talen and NorthWestern then answered the Complaint on Remand and simultaneously moved the Court to require joinder of the United States as a necessary party because the United States also owned land on the river segments where the State claimed title. (Docs. 192, 197.) The Court granted the motion (Doc. 216). Montana then filed an Amended Complaint joining the United States on October 31, 2019 (Doc. 221).

Following the close of discovery on July 30, 2021, Defendants moved for summary judgment on several of the Relevant Segments, and the parties filed several motions in limine. The Court denied the motions for partial summary judgment and reserved ruling on the motions in limine. The final pretrial conference was held on January 4, 2022, and, as previously indicated, the bench trial commenced on January 4, 2022.

Shortly following the filing of the parties’ post-trial proposed findings of fact and conclusions of law, and trial briefs, Talen Montana, LLC commenced a Chapter 11 Bankruptcy case on May 9, 2022 in United States Bankruptcy Court for the Southern District of Texas, Houston Division (*In re: Talen Energy Supply, LLC*, No. 22-90054). Montana then filed a motion before the Bankruptcy Court to modify the automatic stay “in order to allow USDC Montana to decide the riverbed

ownership for both Talen Montana and NorthWestern, on the ground that the Riverbed Litigation has progressed to a point that the USDC Montana should decide the issues in the interests of economy and efficiency given that the issue of riverbed ownership has been subject to a ten-day evidentiary hearing and all post-trial briefing has been completed.” (Doc. 1035, *In re: Talen Energy Supply, LLC*.) Pursuant to a stipulation, the Bankruptcy Court granted this motion on September 15, 2022 (Doc. 1229, *In re: Talen Energy Supply, LLC*), and thereafter, this Court issued its Order documenting the lifting of the automatic stay “to permit this Court to issue a decision on the title navigability phase of this action and to permit the parties to file an appeal if necessary.” (Doc. 411.) Talen then filed its response to Montana’s Amended Proposed Findings of Fact and Conclusions of Law on October 6, 2022 (Doc. 412), and the case was fully submitted on Phase I.

Based on this entire trial record, the Court makes the following findings of fact:

FINDINGS OF FACT

III. SEGMENT-BY-SEGMENT ANALYSIS AND DETERMINATION OF THE RELEVANT SEGMENTS AND DISPUTED REACHES

1. The U.S. Supreme Court’s decision in this case made it clear that in order to determine the issue of riverbed title, this Court must first determine the relevant segments:

To determine title to a riverbed under the equal-footing doctrine, this Court considers the river on a **segment-by-segment basis** to assess whether the segment of the river, under which the riverbed in dispute lies, is navigable or not. . . . The Montana Supreme Court discounted the segment-by-segment approach of this Court’s cases, calling it “a piecemeal classification of navigability—with some stretches declared navigable and others declared non-navigable.” . . . This was error. The segment-by-segment approach to navigability for title is well settled, and it should not be disregarded. . . .

Practical considerations also support segmentation. **Physical conditions that affect navigability often vary significantly over the length of a river.** This is particularly true with longer rivers, which can traverse vastly different terrain and the flow of which can be affected by varying local climates. The Missouri River provides an excellent example: Between its headwaters and mouth, it runs for over 2,000 miles out of steep mountains through canyons and upon rocky beds, over waterfalls and rapids, and across sandy plains, capturing runoff from snow melt and farmland rains alike. **These shifts in physical conditions provide a means to determine appropriate start points and end points for the segment question.** Topographical and geographical indicators may assist. . . .

An analysis of segmentation must be sensibly applied. A comparison of the nonnavigable segment’s length to the overall length of the stream, for instance, would be simply irrelevant to the issue at hand. . . .

A number of the segments at issue here are both discrete, as defined by physical features characteristic of navigability and nonnavigability, and substantial, as a matter of administrability for title purposes. . . .

Thus, the Montana Supreme Court was wrong to state, with respect to the Great Falls reach and other stretches of the rivers in question, that portages “are not sufficient to defeat a finding of navigability.” . . . In most cases, they are, because they require transportation over land rather than over the water. This is such a case, at least as to the Great Falls reach.

PPL, 565 U.S. at 593–97 (emphases added).

2. Montana's expert fluvial geomorphologists, Dr. Andrew C. Wilcox and Dr. John C. (Jack) Schmidt identified seventeen (17) geomorphic river channel segments for the portions of the Clark Fork, Missouri and Madison Rivers. Within these segments, seven (7) Disputed Reaches are situated. The Court refers to the segments containing Disputed Reaches as the Relevant Segments. With three exceptions identified below, the parties agree with the following segment designations:

Missouri River:

- The **Townsend Valley Segment** between River Miles 2296 and 2254.2, which is upstream of any of the Disputed Reaches of the Missouri River.
- The **Big Belt Mountains Segment** between River Miles 2254.2 to 2208, which contains the entirety of the Hauser and Holter Dam Disputed Reaches, between River Miles 2252.6 and 2210.5.
- The **Adel Mountain Volcanic Field Segment** between River Miles 2208 and 2186, which is downstream of the Disputed Reaches related to the Hauser and Holter Dam Projects.
- The **Long Pool Segment** between River Miles 2186 and 2121.7, which ends just upstream of the Disputed Reach related to the Black Eagle Dam Project.
- The **Sun River to Black Eagle Falls Segment** between River Miles 2121.7 and 2117.9 which contains the Black Eagle Dam Disputed Reach, between River Miles 2121.1 and 2117.9. *The Defendants disagree with this segment.*
- The **Great Falls Segment** between River Miles 2117.9 and 2109.6, which the Court has already determined to be non-navigable for title purposes.

- The **Big Falls to Belt Creek Segment** between the base of the Great Falls at approximate River Mile 2109.6 and River Mile 2104.3, which contains the Morony Dam Disputed Reach between River Miles 2109.6 and 2105.3. *The Defendants disagree with this segment.*

Clark Fork River:

- The **Flathead Segment** from the Flathead River confluence to Henry Creek between River Miles 245.8 and 240, which is upstream of the Disputed Reach related to the Thompson Falls project.
- The **Plains Segment** from Henry Creek to Lynch Creek between River Miles 240 to 232, which is just upstream of the Disputed Reach for the Thompson Falls project.
- The **Eddy Segment** between River Miles 232 and 208.1, which contains the upstream portion of the Thompson Falls Disputed Reach between River Mile 220.1 and 208.1. *The Defendants disagree with this segment.*
- The **Thompson Falls Segment** between River Miles 208.1 and 207.1, which contains the downstream portion of the Thompson Falls Dam Disputed Reach ending at River Mile 207.4.
- The **Noxon Segment** between River Mile 207.1 and 169.7 which is downstream of the Thompson Falls Disputed Reach.

Madison River:

- The **Headwaters Area or West Yellowstone Basin Segment** between River Miles 139 and 112.5, which contains the upstream portion of the Hebgen Dam Disputed Reach, beginning at River Mile 125.1.
- The **Upper Canyon Segment** between River Miles 112.5 and 101, which contains the downstream portion of the Hebgen Dam Disputed Reach ending at River Mile 108.4.
- The **Madison Valley Segment** between River Miles 101 and 42.5 and the **Anabranching Sub-Segment** between River Miles 61 and 42.5

which contains the upstream portion of the Madison Dam Disputed Reach, beginning at River Mile 46.2.²

- The **Lower Canyon Segment** between River Miles 42.5 and 22.0 and the **Beartrap Canyon Sub-Segment** between River Miles 42.5 and 33, which contains the downstream portion of the Madison Dam Disputed Reach, ending at River Mile 39.4.
- The **Lower Madison Valley Segment** between River Miles 22 and 0. This segment is downstream of any of the Disputed Reaches of the Madison River.

3. As to those segments identified above where there is no disagreement between the parties, the Court adopts those segments as designated by Drs. Wilcox and Schmidt. The Court resolves the three segments where there is a disagreement as follows:

Sun River to Black Eagle Falls Segment (Missouri River):

Defendants' expert, Dr. Robert Mussetter, disagreed with the upstream boundary of the Sun River to Black Eagle Falls Segment, arguing that it should begin further downstream at River Mile 2121.1, rather than River Mile 2121.7 as designated by Montana's experts, Drs. Wilcox and Schmidt. Dr. Mussetter testified that near Broadwater Bay, located at River Mile 2121.1, the "[g]radient of the segment increased" which, in his opinion, justified an adjustment to the segment boundary. Dr. Wilcox testified that he selected River Mile 2121.7

² Although Dr. Schmidt designated the Anabranching reach of the Madison River as a sub-segment of the Madison Valley Segment, the parties appear to agree that the Anabranching reach could also be designated as a standalone segment. The Court does not consider this minor distinction to be significant in its analysis of navigability for title, and thus adopts the Anabranching reach as a sub-segment of the Madison Valley Segment.

because it was the confluence of the Missouri River with the Sun River, which he described as one of the most significant tributaries to the upper Missouri, increasing the drainage area by 9%, contributing additional flow and sediment beginning at River Mile 2121.7. Dr. Wilcox also testified that this significant addition to flow related to the Sun River entering the Missouri River alone distinguishes this segment from the upstream Long Pool Segment, and also serves as a transition segment between the Long Pool and the Great Falls. The Court agrees with the analysis of Montana's experts, and thus adopts River Mile 2121.7 as the upstream boundary for this segment.

Big Falls to Belt Creek Segment (Missouri River):

Defendant's expert, Dr. Mussetter, also disagreed with the downstream boundary of the Big Falls to Belt Creek Segment identified by Drs. Wilcox and Schmidt. Dr. Mussetter testified that the downstream boundary should be relocated 2.8 miles further downstream to River Mile 2101.6, contending that the additional 2.8 mile reach should be added to this segment in order to incorporate the bed rock shelves and associated rapids that continue downstream from the confluence of Belt Creek and the Missouri River. The Court agrees with the analysis of Dr. Mussetter, and adopts River Mile 2101.6 as the downstream boundary of this segment.

Eddy Segment (Clark Fork River):

Defendants' expert geomorphologist, Dr. Michael Harvey, disagreed with the upstream boundary of the Eddy Segment of the Clark Fork River. He testified that it should begin further upstream at River Mile 235.5 rather than River Mile 232. The basis for Dr. Harvey's opinion was that unlike the Plains Segment, which is upstream of the Eddy Segment, the Eddy Segment has considerable variation (referring to the Plains Rapids and the Eddy Islands), and from a geomorphological standpoint, it made more sense to place these complex mid-channel bars and riffles into the more complex Eddy Segment than the uniform upstream Plains Segment. With a single-thread channel, the Plains Segment lacks the complexity of the Eddy Segment. The Eddy Segment includes areas where the flow divides between multiple channels and where bedrock outcroppings create rapids. Thus, Dr. Harvey concluded that the complex mid-channel bars and riffles should be placed in the more complex Eddy Segment rather than the more uniform Plains Segment. The Court agrees with the analysis of Dr. Harvey, and adopts River Mile 235.5 as the upstream boundary of the Eddy Segment.

4. As explained in footnote 1 above, Montana's Expert Surveyor, Ken Jenkins, testified that Montana is claiming title to portions of the historic riverbeds of the Missouri, Clark Fork and Madison Rivers between the ordinary low water marks, and between the upstream and downstream boundaries of the Hebgen,

Madison, Hauser, Holter, Black Eagle, Morony and Thompson Falls hydroelectric dam projects. Mr. Jenkins refers to these particular river reaches between the FERC boundaries as the “Disputed Reaches” which Montana claims title to under the Equal Footing doctrine. As described in paragraphs 2 and 3 above, the geomorphic channel segments adopted by the Court do not directly coincide in each instance to the Disputed Reaches. That is, the Court has designated segments of the three rivers, on a segment-by-segment basis, as mandated by the U.S. Supreme Court, even though some of those segments do not contain Disputed Reaches. The ultimate inquiry into navigability for title under the equal footing doctrine is to determine whether those portion of the rivers, which overlie the riverbed land Montana has identified within the Disputed Reaches of each river, are navigable or not.

5. To summarize, the Court adopts as the Disputed Reaches the following:

Missouri River: Those portions of the riverbed of the Missouri River between River Mile 2252.6 and River Mile 2237.0 (Hauser Dam Disputed Reach), between River Mile 2237.0 and River Mile 2210.5 (Holter Dam Disputed Reach), between River Mile 2121.1 and the head of Black Eagle Falls at approximate River Mile 2117.9 (Black Eagle Dam Disputed Reach), and between the base of the

Great Falls at approximate River Mile 2109.6 and River Mile 2105.3 (Morony Dam Disputed Reach).

Clark Fork River: Those portions of the Riverbed of the Clark Fork River between River Mile 220.1 and River Mile 207.4 (Thompson Falls Dam Disputed Reach).

Madison River: Those portions of the riverbed of the Madison River between River Mile 125.1 and River Mile 108.4 (Hebgen Dam Disputed Reach), and between River Mile 46.2 and River Mile 39.4 (Madison Dam Disputed Reach).

6. Some general principles deserve repeating at this juncture. The issue before the Court is whether the Relevant Segments containing the above-described Disputed Reaches of the rivers at issue are navigable for title, or not. Again, they are navigable in fact when they are used, or susceptible of being used, as highways of commerce, over which trade or travel could have been conducted in the customary modes of trade and travel on water at the time of statehood. *PPL*, 565 U.S. at 592. Thus, a segment is navigable in fact if the evidence establishes actual use or susceptibility of use at the time of statehood.

7. The parties disagree whether the presence of obstacles to free passage in the river such as rapids, riffles, obstructions or occasional areas of low water, defeat navigability. According to Montana, for title purposes, a river's use "need not be without difficulty, extensive, or long and continuous," so that even the

capacity for seasonal log drives will qualify a river as navigable. *Oregon v. Riverfront Protection Ass’n*, 672 F.2d 792, 795 (9th Cir. 1982); *Hardy v. State Land Bd.*, 360 P.3d 647, 659–60 (Or. Ct. App. 2015), *cert. denied*, 137 S. Ct. 370 (2016). Nor must a river’s use be broadly commercial: use “limited in the sense of serving only a few people” sufficiently distinguishes “between navigability and non-navigability.” *Utah v. United States*, 403 U.S. 9, 11 (1971). Given a river’s actual use or susceptibility of use, the mere presence of shallows and sandbars “does not make a river nonnavigable.” *United States v. Utah*, 283 U.S. 64, 86 (1931); *United States v. Holt State Bank*, 270 U.S. 49, 57 (1926) (“Sand bars in some parts of the lake prevented boats from moving readily all over it, but the bars could be avoided by keeping the boats in the deeper parts or channels.”).

According to Defendants, relying on *PPL v. Montana*, once the start and end points of a segment are established, a non-navigable portion defeats navigability for the entire segment; that is, portages, whether caused by falls, shoals or other features, typically defeat a finding of navigability. *PPL*, 565 U.S. at 597.

8. The Court’s view on this disputed issue lies somewhere in between the respective positions of the parties. The Court could envision a river segment of significant length, with one or two difficult obstacles such as a rapid, riffle, or some other obstruction of small length (which may even require a brief portage), where the vast majority of the segment remains navigable in fact as a highway for

commerce at the time of statehood. Perhaps the boat's cargo would need to be temporarily removed to lessen the draft and facilitate passage through or around the rapid or riffle. Or perhaps, the segment is of such length that commerce could occur within the reaches of the segment upstream and downstream of the obstruction. These are only two of many examples of how a river segment could be navigable notwithstanding the presence of intermittent obstacles. The Court believes this analysis is consistent with *PPL v. Montana*, and thus, navigability of the Relevant Segments will be analyzed with this principle in mind.

IV. CUSTOMARY MODES OF TRADE AND TRAVEL

9. As a threshold issue to answering the crucial question of whether any of the Relevant Segments were actually used or susceptible of use at the time of statehood, the Court must determine the types of watercraft customarily used for trade or travel at or near statehood. In Section V of this Order the Court will consider the natural and ordinary condition of the Relevant Segments of the rivers at or near statehood.

10. Here again, the parties present significantly divergent positions on the customary modes of trade and travel. Defendants presented at trial the expert testimony of Dr. Mark Newell, a marine archaeologist; Dr. David Emmons, historian and Professor Emeritus, University of Montana; Dr. Jeremy Attack, economic historian and Professor Emeritus, Vanderbilt University; and Joshua

Alexander, Chief Cadastral Surveyor of Montana, North Dakota, and South Dakota, Bureau of Land Management. They all opined that the upland steamboat, and only this watercraft, was the customary mode of trade and travel on the rivers of Montana at the time it became a state in 1889. There is no question that upland steamboats plied many of the waters of Montana, specifically on the Yellowstone River, upriver on the Missouri as far as Fort Benton, and on the Clark Fork River downriver from Thompson Falls. There was also evidence introduced at trial that steamboats were used for commercial purposes in the Long Pool segment of the Missouri River at or very near the time of statehood, including the *Fern*, the *Minnie*, the *Francis*, the *Swan* and the *J.J. Hill*.

11. Upland steamboats had many advantages. Primarily, they could carry between 150 and 350 tons or as much as 10,000 cubic feet of cargo. The disadvantages of the upland steamboat were its size and draft. Although upland steamboats were designed to have the lightest possible draft when fully loaded, they were still long and broad beamed, averaging 100 to 178 feet in length and 18-33 feet in width. These vessels were propelled by a steam-powered, side-mounted paddle wheel, and outfitted with spars in order to “grasshopper” over sand or mud bars. The upland steamboat had a loaded draft of at least 29 inches and an operating depth of approximately 40-60 inches. A craft’s draft and operating depth are different because substantial gradient changes and craft velocity cause the hull

of any vessel to rise and fall based upon the rate of flow of the water and the boat's weight. In other words, in order to operate safely and avoid rocks, shallows and other obstacles a watercraft requires significantly deeper water than the vessel's draft. Operating depth, coupled with gradient, were the key determinants whether an upland steamboat could operate safely in a river.

12. Defendants also presented considerable evidence that economic conditions in Montana at or near statehood would have supported the use of upland steamboats on the Relevant Segments, if it had been possible. Defendant's experts testified that in 1867 forty-two (42) steamboats docked at Fort Benton, steamboat travel tapered off in the early 1870s due to a business recession in the United States, and then surged again in the latter part of the 1870s and through the 1880s. Traffic into and out of Fort Benton surged following gold and mineral discoveries in the southwestern part of Montana during this same time period.³ Although the arrival of the railroads in Montana in the 1880s lessened steamboat traffic into Montana, nevertheless eight steamboats arrived in Fort Benton between 1888 and

³ In 1862, prospectors struck gold at Grasshopper Creek, which led to the establishment of the town of Bannack in southwestern Montana. The next year, miners discovered gold in Alder Gulch, near what would become Virginia City. Finally, in 1864, the discovery of gold in Last Chance Gulch quickly led to the creation of Helena. In the mid-1860s, the discovery of silver which was mined near Argenta, Phillipsburg, Helena and Butte, created a silver boom. These gold and silver mines were large, industrial operations that required manpower and large amounts of supplies. Mining led to mineral processing in the late 1860s, requiring stamp mills and smelters, which increased the demand for equipment and workers. During this time period, thousands of people began streaming into what became the Montana Territory in pursuit of fame and fortune.

1890, including three in 1889. Between 1888 and 1890, steamboats carried 1800 tons of cargo to and from Fort Benton. Defendants also presented evidence that transportation of goods and people by upland steamboat was economically more advantageous than rail transport or via overland roads.

13. Unquestionably there was a demand for commercial transportation in Montana during the territorial period (1864–1889) and at the time of statehood in 1889. Passengers and cargo traveled by steamboat as far upstream on the Missouri as Fort Benton. For a brief period before statehood, miners and railroad builders used steamboats on the Clark Fork downstream from Thompson Falls. But, according to Defendants, the upland steamboat was unable to navigate any of the Relevant Segments, requiring the construction of rudimentary, overland trails to and from the centers of population in southwest Montana.⁴ According to Defendants, with this increase in population and economic activity, people and supplies had to come into the territory, and people and minerals had to exit the territory. Defendants contend that none of these supplies or people traveled by upland steamboat on either the Missouri River above Fort Benton, the Clark Fork above Thompson Falls, or any part of the Madison River, notwithstanding the

⁴ The most significant of these roads was probably the Mullan Road, which was completed in 1866. The Mullan Road was 624 miles long and connected Fort Benton to the Columbia River at Fort Walla Walla. The Mullan Road was used to transport goods within Montana. Another road was the Bozeman Trail connecting the Montana Territory to the Oregon Trail. From the south, the Montana Trail transported goods and passengers around 450 miles between southwest Montana and Corrine, Utah. Other trails connected Helena, Virginia City, Bannack and Butte.

proximity of these waterways to the mining and production activities, and the associated population growth. In summary, Defendants contend that the economics and efficiencies of steamboat commerce were so advantageous that if they could have traversed the Relevant segments, they would have. That is, because the upland steamboat did not, and could not, travel within the Relevant Segments, Defendants argue that none of these segments were navigable in fact at the time of statehood.

14. Montana takes a more expansive view on the customary modes of trade and travel. Montana presented at trial the expert testimony of Dr. Ted Karamanski, a specialist in the history of the American West, maritime history, and the history of the fur trade and logging industry, and Jason S. Cajune, an expert boatman, river guide and boat builder.⁵

15. Montana's experts testified that numerous different types of watercraft were present and used on western and Montana rivers up to and at the time of statehood, including dugout canoes, bull boats, skin canoes, bark canoes, bateaus,

⁵ Jason S. Cajune has built various types of watercraft, including historical and contemporary designs, and reviewed historical accounts of watercraft used at or near the time of Montana's statehood in 1889. As an experienced boatman and river guide, Mr. Cajune has piloted both historical and modern boats on many of the Relevant Segments in this case. Although Mr. Cajune does not have the academic qualifications of many of the experts in this case, he has hands-on, practical experience. The Court found his testimony to be informative and reliable on many of the issues in this case. In fact, expert Cajune was uniquely qualified to opine on the type of watercraft, both contemporary and historical, that were capable of traveling the waters in question.

mackinaws, keelboats and steamboats. These two experts testified that many of these types of boats were used by Native Americans, fur trappers, prospectors, and explorers on Montana Rivers, and that these craft were used for subsistence, fishing, local barter, and to transport goods and people.

16. The advantages to these smaller types of watercraft were their size, generally 10-20 feet in length, and shallow draft, 2-8 inches. These boats were lightweight, maneuverable, and capable of traveling through Class II, III and IV rapids. The obvious disadvantage of these watercraft is that their relatively small size limited the amount of cargo they could transport, and for the most part they were non-motorized, limiting their ability to travel upstream. Defendants' expert Dr. Mark M. Newell, opined in his report that the cargo capacity of the Upland steamboat was 150-350 tons, as compared to keelboats, mackinaws and pirogues, which were limited to +/-30 tons of cargo. The Court concludes that to exclude these smaller craft from consideration in this case would be inappropriate and contrary to the evidence presented at trial. To limit the analysis to only upland steamboats, as urged by Defendants, would ignore the fact that smaller watercraft contributed to the lives and well-being of many different populations of people who were dependent on Montana's rivers and waterways for transportation, trade

and commerce.⁶ To the fur trapper, a bateau full of hides was his stock in trade. To the indigenous people, a skin boat laden with people, food and possessions, was a form of transportation, and in their way of life, a form of commerce.

17. In *The Montello*, 87 U.S. (20 Wall.) 430 (1874), The U.S. Supreme Court held that “the true test of the navigability of a stream does not depend on the mode by which commerce is, or may be, conducted, nor the difficulties attending navigation,” and that:

It would be a narrow rule to hold that in this country, unless a river was capable of being navigated by steam or sail vessels, it could not be treated as a public highway. The capability of use by the public for purposes of transportation and commerce affords the true criterion of the navigability of a river, rather than the extent and manner of that use. If it be capable in its natural state of being used for purposes of commerce, no matter in what mode the commerce may be conducted, it is navigable in fact, and becomes in law a public river or highway. Vessels of any kind that can float upon the water, whether propelled by animal power, by the wind, or by the agency of steam, are, or may become, the mode by which a vast commerce can be conducted, and it would be a mischievous rule that would exclude either in determining the navigability of a river. It is not, however, as Chief Justice Shaw said ‘every small creek in which a fishing skiff or gunning canoe can be made to float at high water is deemed navigable, but, in order to give it the character of a navigable stream, it must be generally and commonly useful to some purpose of trade or agriculture.

The Montello, 87 U.S. at 441–42.

⁶ Defendants contend that there is scant evidence of indigenous use of Montana rivers on or about the time of Montana’s statehood. This is not surprising, considering the fact that the history of the indigenous people who lived and populated the lands which later became the Montana Territory was largely oral, passed from generation to generation. Unlike the upland steamboat, a largely Eurocentric endeavor, where times of travel and tonnage of loads was meticulously recorded, indigenous people did not maintain such records, notwithstanding the fact that they populated many of the lands served by the rivers in question.

18. Thus, the Court will not limit its analysis to only the upland steamboat. Other types of smaller watercraft were capable of, and in fact, transported people and goods on Montana's rivers up to and including the date of statehood.

19. It is a stretch, however, to contend as Montana does, that because expert Cajune, an elite, fearless and accomplished boatman, could navigate any number of boats down any of the subject waterways and Relevant Segments, including the historical Thompson Falls rapids on the Clark Fork River, and the Beartrap Canyon on the Madison River, which is seasonally laden with Class IV rapids, that all of the Relevant segments were susceptible to navigation. The Court does not doubt that expert Cajune, or someone else of comparable skills, could navigate these waters in any number of historical or modern boats. But the Court is not convinced that this establishes susceptibility of use as defined by the applicable legal standard. That is, the issue is whether the Relevant Segments were capable of use for purposes of transportation or commerce:

The question remains one of fact as to the capacity of the rivers in their ordinary condition to meet the needs of commerce as these may arise in connection with the growth of the population, the multiplication of activities, and the development of natural resources. And this capacity may be shown by physical characteristics and experimentation as well as by the uses to which the streams have been put.

Utah, 283 U.S. 64 at 83.

20. The next issue is whether evidence of modern-day use of the Relevant Segments should be considered by the Court. On this subject, *PPL v. Montana* provides explicit guidance:

True, river segments are navigable not only if they “[were] used,” but also if they “[were] **susceptible of being used,**” as **highways of commerce at the time of statehood**. . . . Evidence of recreational use, depending on its nature, **may bear upon susceptibility of commercial use** at the time of statehood. . . . Similarly, poststatehood evidence, depending on its nature, **may show susceptibility** of use at the time of statehood. See [*Utah*, 283 U.S. at 82–83] (“[E]xtensive and continued [historical] use for commercial purposes” may be the “most persuasive” form of evidence, **but the “crucial question” is the potential for such use at the time of statehood, rather than “the mere manner or extent of actual use”**).

Evidence of present-day use may be considered to the extent it informs the historical determination whether the river segment was susceptible of use for commercial navigation at the time of statehood. **For the susceptibility analysis, it must be determined whether trade and travel could have been conducted “in the customary modes of trade and travel on water” over the relevant river segment “in its natural and ordinary condition.” . . . At a minimum, therefore, the party seeking to use present-day evidence for title purposes must show: (1) the watercraft are meaningfully similar to those in customary use for trade and travel at the time of statehood; and (2) the river’s poststatehood condition is not materially different from its physical condition at statehood. . . . If modern watercraft permit navigability where historical watercraft would not, or if the river has changed in ways that substantially improve its navigability, then the evidence of present-day use has little or no bearing on navigability at statehood. . . .**

Modern recreational fishing boats, including inflatable rafts and lightweight canoes or kayaks, may be able to navigate waters much more shallow or with rockier beds than the boats customarily use for trade and travel at statehood. . . .

While the Montana court was correct that a river need not be susceptible of navigation at every point during the year, neither can that susceptibility be so brief that it not a commercial reality.

PPL, 565 U.S. at 600–01 (emphases added).

21. All of the Relevant Segments, except those obviously impacted by dams, are currently used by recreationists. For instance, dozens and dozens of modern day driftboats and rafts transport anglers every day during the fishing season through many of the segments of the Madison, Missouri and Clark Fork segments which are the subject of this case. Experienced whitewater enthusiasts navigate kayaks, canoes, inflatable rubber rafts and other boats with ease through Class III and IV rapids. These boats, which are made of state-of-the-art pliable materials, with low drafts, and extreme ease of maneuverability, have made it possible for the experienced boatman, armed with sufficient courage, to navigate pretty much any hazard in any river. Although many of the Relevant Segments are not materially different from their physical condition at statehood, these modern-day watercraft are not meaningfully similar to those in customary use for trade and travel at the time of statehood. Thus, the Court concludes that the first factor of the *PPL v. Montana* test has not been met in this case. Modern day usage will not be considered by the Court. The Court now turns to the river-by-river analysis.

V. RIVER-BY-RIVER ANALYSIS

A. Missouri River

22. At the time at and near statehood, passengers and cargo traveled as far upstream on the Missouri River as Fort Benton, but from there, goods and passengers primarily moved over arduous overland trails to and from the centers of population in southwest Montana. For example, as early as 1864, one stamp mill was carried by steamboat on the Missouri River to Cow Island, downstream of Fort Benton, then was hauled in pieces as freight by wagon train to Helena via Fort Benton, costing more in freighting charges than it had cost to purchase the mill.

23. Defendants' expert witness Dr. Atack calculated the cost of transporting goods on water, particularly between Fort Benton and Helena, and the cost of transporting goods by overland routes used in Montana at the time of statehood, and he found that even accounting for the additional costs of portages of cargo around the Great Falls and from Stubbs Ferry to Helena, the cost of water transport was less than half of the cost of overland transport.

24. The first documented evidence of use of the Upper Missouri River was the Lewis and Clark Expedition. The parties disagree as to the import of that expedition. Dr. Swartout read all of the Lewis and Clark journal entries from the Expedition's travels from Great Falls to Three Forks. He opined that although there were some challenges in traveling upstream from Great Falls to Three Forks,

the Lewis and Clark Expedition did not encounter any major obstacles.

Defendants, by contrast, contend that the Expedition was intended to find a passage from the Missouri River to the Columbia River and failed to achieve that goal, recounting documentation of the Expedition's portage around the Great Falls (ending upstream from the mouth of the Sun River) and difficulty navigating rapid currents and shallow water upstream of the Great Falls in dugout canoes. The Court finds that the explorers' accounts of navigational difficulties upstream of the Great Falls do not support a finding of navigability in fact.

25. Dr. Newell testified that there is no archaeological evidence of commercial navigation, including landing places, vessel wreckage, or artifacts, in or along any of the Relevant Segments of the Missouri. The Court considers this fact in weighing the credibility of contemporaneous reports of commercial navigation on the Missouri.

26. Mackinaw boats were used by fur traders above Great Falls on the Upper Missouri River, but the fur trade did not encroach into the Upper Missouri upstream of Great Falls in any significant way.

27. By the mid-1860s, there were newspaper reports of people using mackinaws to travel from Stubbs Ferry (roughly 12 miles overland from Helena) to Great Falls. The parties dispute whether these reports were credible. Defendants attributed such reports to "frontier press boosterism," in which promoters of towns

competed to attract investors or new settlers. Dr. Swartout testified that this particular announcement of eighteen mackinaws was directed at the local audience and was not intended to attract people or money into Montana and was therefore not boosterism, but he conceded at trial that the newspaper report relied upon was describing a future event that was expected to happen rather than an event that had already occurred. Accordingly, and in light of the lack of archeological evidence of commercial navigation on the Madison, the Court assigns this evidence little weight.

28. In 1872, Thomas Roberts, an engineer for the Northern Pacific Railroad, conducted a survey of the Upper Missouri River from Gallatin (now known as Three Forks) to Fort Benton. The Northern Pacific Railroad tasked Roberts with evaluating whether the Missouri River from Three Forks to Great Falls was navigable by steamboat. Roberts conducted his survey of the Upper Missouri River starting at Three Forks in a skiff with one assistant and gear and supplies for the two-week survey. Roberts took his skiff down the Missouri to Sun River, portaged the Great Falls, and put back in and took the skiff to Fort Benton.

29. Roberts' 1872 report to the railroad observed, "At present, there is no business whatever done on the waters of the Upper Missouri, but one small raft having descended part way this season."

30. Montana contends that Roberts ultimately concluded that while certain improvements would make it easier for steamboats, the Upper Missouri River was navigable to steamboats drafting 20 inches as far upstream as Stubbs Ferry in its original state with the exception of the Great Falls reach. However, this conclusion rests upon a much shallower draft than the minimum required for the upland steamboat, as noted above. Additionally, Roberts noted numerous navigational impediments such as rapids and sand bars on the Upper Missouri, and he advised that the watercraft used “will, at all times, even with the numerous improvements that could be suggested, have to be of small size and navigated with great caution.” Accordingly, the Court assigns Roberts’ ultimate conclusion of navigability little weight.

31. In its 1878 report, the Army Corps of Engineers noted trade and travel bypassed the Missouri above Fort Benton to travel overland.

32. In 1879, Captain Maguire floated 131.3 miles down the Upper Missouri River from Stubbs Ferry to Great Falls with a party of 15 to 17 in a mackinaw between April 9 and late May. Captain Maguire ordered a full-blown survey of the river from Stubbs Ferry to Great Falls the following year, to be conducted by the Army Corps of Engineers. Captain Maguire reported that the Upper Missouri River was suitable for light-draft boats or light-draft vessels. However, Captain Maguire noted that “[n]o steamboat has ever been on this

portion.” Maguire’s Report noted there were “three places of a less depth than 2 ½ feet” on the Upper Missouri River. The 1883 Maguire Report indicated that the standard of improvement was to establish channel depths of 2.5 feet between Stubbs Ferry and the Sun River.

33. In 1892, Captain Charles Powell recommended that the Army Corps of Engineers spend \$115,837.50 for river improvements above Great Falls. The plan included (1) removal of snags from the reach of river extending up from Great Falls, 51 miles, known as the “long pool”; (2) construction of 2,000 feet of dams and 3,500 feet of bank protection, so as to extend the channel to the towns of Cascade and St. Clair; and (3) construction of 10,000 feet of dams, removal of boulders and rock, and marking other boulders and rock with buoys on the next reach of 60 or 70 miles up to the canyon below Stubbs Ferry.

34. Long after Montana’s statehood and after multiple dams altered the Missouri River from its natural and ordinary condition, in 1940, the Federal Power Commission held dam licensing proceedings to address whether the Upper Missouri was navigable for regulatory purposes, which imposes a different standard than navigability for title. The testimony of witnesses at those proceedings, as recounted by expert historians in this case, reflected a consensus that the Upper Missouri could not be commercially navigated by then-current standards, and improvement to 6 to 12 feet depths to allow passage of commercial

barges would be prohibitively expensive. The Court does not find this evidence especially relevant to determining the Upper Missouri's navigability for title at the time of statehood because dam-building had significantly altered the river from its natural and ordinary condition by this time, but this evidence does reflect how rapidly customary modes of trade and travel on water were evolving around the time of statehood and in the subsequent decades.

(1) Big Belt Mountains Segment (River Mile 2254.2 to River Mile 2208)

(a) Actual Use

35. In the mid-1880s, Nicholas Hilger, a ranch-owner along the Missouri River near Helena and the mouth of the Gates of the Mountains, commissioned the building of a steamboat. Named "The Rose of Helena," Dr. Swartout testified that the boat navigated the Missouri River from the Hilger Ranch to Great Falls and back in 1887. Dr. Emmons reported that Hilger described that trip as a "dangerous undertaking . . . The least mishap . . . would send the boat and men onto the boulders, where disaster would be inevitable" and that Hilger concluded that it would require "considerable time and expense to render the passage safe."

36. Dr. Swartout testified that the Rose of Helena successfully navigated downstream and upstream through the areas where Holter and Hauser Dam are currently located for several years, transporting passengers to a picnic area near the

Hilger Ranch. An 1892 Army Corps of Engineers Report stated that the Rose “has passed up through all the rapids between Stubbs Ferry and the Long Pool without cordelling, and with comparative ease.” By contrast, Hilger’s son described the steamboat’s experience passing through Beartooth Rapids on a trip with his father on the Rose during the early 1890s: “[A]ny man who has any judgment at all would have known better than to . . . run those rapids in the condition it was . . . We couldn’t have handled the boat. We would have went straight into that rock, with the waves rolling 20 or 30 feet.” The Hilgers waited two weeks in Beartooth Rapids before they could get off the bank. The Rose of Helena never went down the Missouri past Beartooth Rapids again.

37. The Rose of Helena’s picnic area trips demonstrated actual transportation of passengers on a six to seven mile portion of the Big Belt Segment upstream of Beartooth Rapids.

38. Dr. Swartout reported that two individuals floated lumber rafts through the Big Belt Segment to the Sun River in the 1860s. However, the sources for these reported log drives consisted of (1) an unsourced newspaper article written twelve years after the first drive, and (2) reports of a planned future log drive. Accordingly, the Court assigns this evidence of “actual use” of the Big Belt Segment no weight.

(b) Susceptibility of Use

39. Because Montana demonstrated actual use of only a small portion of the Big Belt Mountain Segment by a preponderance of the evidence, the Court must turn to the entire segment's susceptibility of use.

40. Prior to construction of the dams, the river flowed through relatively narrow bedrock canyons through much of the segment, with the less constricted, roughly two-mile long Hilger Valley near the middle of the segment.

41. In his 1872 survey of the Upper Missouri, Roberts noted at least two areas in the Big Belt Segment with depths in the 20-inch range (right chute at Red Rock Island, River Mile ~2222.8 and the ripple adjacent to the several islands near River Mile 2215.2) and two additional areas with 2 feet and 2.5 feet of depth, respectively (White Rock Rapids at River Mile 2227.0 and Beartooth Rapids at River Mile 2223.8).

42. In 1893, the Missouri River Commission produced maps showing four named rapids in the portion of the Big Belt Mountains Segment that is now inundated by Holter Reservoir: Rock (River Mile 2235.9), White Rock (River Mile 2227.1), Beartooth (River Mile 2223.7), and Buck (River Mile 2221.4). The 1893 Missouri River Commission maps also show one named rapid (St. Germain, ~River Mile 2253), five unnamed rapids and two named ripples (Flume Ripple, ~River Mile 2245.3 and Trout Creek Ripple, ~River Mile 2246.8) in the upper half

of the portion of the Big Belt Mountains Segment now inundated by Hauser Reservoir.

43. Beartooth Rapids covers about two miles of the river from approximately River Mile 2222.7 to 2224.7. Beartooth Rapids is both shallow and steep. The gradient through the primary part of the Rapids is 31 fpm (feet per mile), which would have prevented commercial navigation and is ten times steeper than the River at Fort Benton. It is also shallow; the shallowest maximum depths of Beartooth Rapids at the 90 percent exceedance flow⁷ are about 24 inches, with some locations as shallow as 18 inches. At the median flow, the minimum depth is slightly less than 2 feet. Boulders can project above the average bed elevation and into the flow of the river, further limiting depths available for watercraft. Velocities reach 7 to 8 fps at median discharges; at a 31-fpm gradient, these velocities would be challenging for navigation because they would cause the hull of a watercraft to plunge into the water. For all of these reasons, the Court finds the Beartooth Rapids was a complete barrier to commercial navigation in the Big Belt Mountains Segment.

44. The “reef of rocks” includes 3.5 miles of the pre-Holter Dam river between River Mile 2212.5 to River Mile 2216. At seven locations in Reef of

⁷ The exceedance flow refers to the percentage of time the flow of a river at a specific point exceeds an identified flow.

Rocks, the maximum depth at the 90 percent exceedance discharge during the navigation season is less than 20 inches. Under the pre-dam conditions at statehood, boulders would have projected into the flow, further lessening the available depth for watercraft.

45. White Rock Rapids are a four-mile reach of the river between River Mile 2225.5 and River Mile 2229.4, which is located in a confined section of the canyon about 1.5 miles downstream from Hilger Valley and the entrance to the Gates of the Mountains. The gradient through the steepest part of White Rock Rapids is 18.5 fpm, and the slope over the total rapids is 9.3 fpm. These gradients are between three to six times steeper than the River at Fort Benton. White Rock Rapids has the highest modeled velocities in this reach of river, reaching about 8.5 fps (feet per second) at the 10 percent navigation season's exceedance flow.

46. Rock Rapids, from River Mile 2234.7 to River Mile 2237.1, have depths of about 2.8 feet at the 90 percent navigation season flow, but are considerably shallower across the bulk of the river—less than one foot in several locations at the median navigation season flow.

47. The Court finds the Big Belt Mountains Segment contained several complete barriers to navigation and thus was not susceptible of use as a highway for commerce over which trade and travel could be conducted at the time of Montana's statehood.

(2) Adel Mountain Segment (River Mile 2208 to River Mile 2186)

48. The Adel Mountain Segment is not one of the Relevant Segments and does not contain any hydroelectric facilities or disputed reaches, but the Court discusses it here to provide context for its analysis for Relevant Segments discussed below. The Adel Mountain segment is approximately 22 miles long and it contains Lone Pine Rapids (also referred to as the Half Breed Rapids).

49. Lone Pine Rapids had a gradient of 18.9 fpm. Roberts' survey noted Lone Pine Rapids as the most dangerous place above the Great Falls and the worst section of the river because of its rocks, islands, shoals, and swift water.

50. Lone Pine Rapids was a complete obstruction to navigation from the Big Belt Mountains Segment for trade and travel to markets downstream.

(3) Long Pool Segment (River Mile 2108.6 to River Mile 2121.7)

51. The Long Pool Segment is an approximately 65-mile reach with its upstream endpoint where the Missouri River emerges from the mountains. Like the Adel Mountain Segment, the Long Pool is not one of the Relevant Segments and does not contain any hydroelectric facilities or disputed reaches, but the Court discusses it here to provide context for its analysis for Relevant Segments discussed below.

52. The Long Pool is meandering and flat. The gradient was just .65 fpm.

53. The Long Pool Segment had received several improvements in the 1890s, and by 1898, Captain Sanford reported that it was “thought that a 3-foot [deep] channel of sufficient width [had] been obtained between Great Falls and Buckshot Island.”

54. In 1887, Dr. Asa Lee Davison completed construction of a steamboat called *The Fern* and then undertook a journey from Townsend downstream to Great Falls, which Dr. Swartout described as slow-going and fraught with challenges from snags and sand bars in part due to low water conditions in late fall. The *Fern* took 17 days to negotiate the 34 miles between Townsend and Canyon Ferry. On the 172 miles from Townsend to Great Falls, the *Fern* averaged just four miles a day. The distance could have been walked in ten days. The *Fern* sailed “proudly” into Broadwater Bay in November 1887.

55. The parties agree that steamboat navigation occurred on the Long Pool Segment at or near the time of statehood. The *Fern* started operating exclusively on the Long Pool in 1889, hauling wood, wool, baled hay, and other agricultural products, and continued to do so for a few years. In the following years additional steamboats began operating in the Long Pool, including the *Minnie*, the *Frances*, the *Swan*, and the *J.J. Hill*.

56. The use of the Long Pool Segment by steamboats is relevant to this Court's analysis of the Relevant Segments insofar as it demonstrates actual use and commercial navigability of at least one segment of the Upper Missouri and thus proves that some demand existed for commercial water transportation via steamboat in this area of Montana at the time of statehood.

(4) Sun River to Black Eagle Falls Segment (River Mile
2121.7 to 2117.9)

(a) Actual Use

57. As noted above, the Court found that the upstream boundary of this segment is River Mile 2121.7, where the Sun River enters the Missouri River. As a result, this segment includes Broadwater Bay and lies next to the city of Great Falls.

58. Also as noted above, the *Fern* navigated to Broadwater Bay in 1887 and docked at the Holter Lumber Company dock. The historical record indicates that steamboats that used the Long Pool would end up in Broadwater Bay.

59. Montana has proven by a preponderance of the evidence that the portion of this segment between the Sun River and Broadwater Bay was actually used in commerce at the time of statehood.

(b) Susceptibility of Use

60. Montana presented evidence that the Sun River to Black Eagle Falls Segment contained about ten percent more water than the Long Pool, was slightly wider, and had an increased but moderate gradient of roughly two feet per mile according to 1889 longitudinal profile surveys—which is less than the gradient of the river at Fort Benton. Dr. Wilcox estimated that channel depths would be similar to what was reported for the Long Pool: five to twelve feet.

61. Defendants, by contrast, introduced evidence that the river becomes shallower and the gradient becomes significantly steeper at the end of Broadwater Bay and that bedrock shelves and ripples in this area would have been impediments to navigation. However, the Court assigns little weight to the evidence of bedrock shelves and ripples because the photographs of such features presented at trial were of the modern, highly modified river and were taken at times of very low river flow.

62. Although Defendants presented evidence that Captain Sanford of the Army Corps of Engineers stated in 1896 that a portion of river within this segment could never be made navigable, the Court assigns this evidence little weight because this statement was made after the Black Eagle Falls dam was built, and thus the river had been altered significantly from its natural state.

63. A map produced by Thomas Roberts indicates a rapid downstream of the Sun River confluence (“First Rapids”). First Rapids is also noted on the Missouri River Commission map. A 1914 longitudinal profile indicated that First Rapids is 0.7 miles downstream of the Sun River confluence, at the location of the Burlington Northern railroad bridge (River Mile 2121) and results in an elevation loss of approximately 3 feet over a distance of 0.3 miles. Although the 1914 longitudinal profile suggests a steep gradient for First Rapids, again, the Court assigns the profile little weight because it was created after the dam was built.

64. Based on the evidence of actual use of part of this river segment from the Sun River to Broadwater Bay, the similarities between the segment’s geomorphic characteristics and the characteristics of the Long Pool Segment and other indisputably navigable portions of the Missouri River not at issue in this case, the Court finds that the Sun River to Black Eagle Falls Segment was susceptible of use in its ordinary and natural condition as a highway for commerce, over which trade and travel could be conducted at the time of Montana’s statehood.

(5) Belt Creek to Big Falls Segment (River Mile 2109.6 to
River Mile 2101.5)

(a) Actual Use

65. The Court finds that there was no actual commercial use of the Belt Creek to Big Falls Segment at the time of statehood.

66. There was one successful attempt to drive logs over the Great Falls to Fort Benton through the Big Falls to Belt Creek Segment. However, as noted in this opinion, the Supreme Court has held that the Great Falls reach was not navigable for title as a matter of law; accordingly, this single log drive cannot suffice to show navigability for title of the Belt Creek to Big Falls Segment, either.

(b) Susceptibility of Use

67. The Big Falls Segment was not susceptible of use at the time of statehood. Sheep Creek Falls was a complete barrier to navigation, bedrock shoals both upstream and downstream from the falls would have been a further barrier to navigation, and over the entirety of the segment the gradients are many times steeper and the depth under most flow conditions are much shallower than necessary for navigation. In light of these geomorphological features, the Court finds Dr. Wilcox's testimony regarding the similarities between this segment and the river downstream near Fort Benton unpersuasive.

68. Maps of the Big Falls to Belt Creek segment created at or near the time of statehood noted continuous rapids around Belt Creek.

69. The Lewis and Clark Expedition began its portage around the Great Falls at Belt Creek, within this segment.

70. The Big Falls Segment was steep, with many parts dropping over 20 fpm. Between Big Falls and the mouth of Belt Creek, the gradient is .0042 (22

fpm). The average gradient of the pre-dam river between the base of the Great Falls and the base of Morony Dam is about 21.5 fpm, with the upstream approximately 2.6 miles of that reach having a flatter gradient of 14.6 fpm and the downstream 1.2 miles, which includes Sheep Creek Falls, having a much steeper gradient of about 36.2 fpm. Between Belt Creek and the downstream segment boundary, the gradient is approximately 12 fpm.

71. Sheep Creek Falls presented a significant obstacle to navigation, but is now inundated by the Morony reservoir. Sheep Creek Falls ran diagonally across the river and had heights varying from 2 feet to 10 feet.

72. The depths in the Big Falls Segment are around two feet. The MRC maps show two shallow shoals upstream from Sheep Creek Falls.

73. Extrapolation of depths and velocities from the Fort Benton gage data as proposed by Montana's experts is unreliable. The Fort Benton gage is 32 miles downstream from Morony Dam. The gradient at the Fort Benton gage is less than 3 fpm. The reach between Belt Creek and the base of the Big Falls is 25 percent wider than at Fort Benton, and the slope of the river is nearly eight times steeper than at Fort Benton. Applying these gradients and channel widths with the same discharge and hydraulic roughness, the average depth in the steep portions of the river upstream from Sheep Creek would be less than one-third the average depth at the Fort Benton gage. Dr. Mussetter explained that the Big Falls Segment is

bedrock-controlled while the Fort Benton reach is a self-formed alluvial river, so Montana's comparisons were inappropriate.

74. Because of steep gradients, shallow depths, and bedrock shelves in the Big Falls Segment, the Big Falls Segment was not susceptible of use at statehood in its ordinary and natural condition as a highway for commerce, over which trade and travel could be conducted.

B. Clark Fork River

75. While Native Americans did not leave written records, the Salish, Kootenai and Flathead tribes' way of life was focused in the general area of the Clark Fork River. Native Americans relied on the river and used canoes for transportation, sustenance, and for trading with British and French fur trappers. While the Native Americans who lived along the Bitterroot River did not use canoes for sustenance, the other Native American Tribes along the Flathead and Clark Fork Rivers did.

76. Captain John Mullan was tasked by Congress with exploring routes across the Pacific Northwest in 1853. George Suckley, a physician with Mullan's expedition of 1853, was sent down the Clark Fork River to record geological features along the river. On a skin boat with three other passengers, Dr. Suckley floated down the Bitterroot River and then the Clark Fork River, lining his boat through sections where water was low and in other places running rapids in the

boat with his supplies. Dr. Suckley continued to Thompson Falls, which Dr. Littlefield testified that he assumed Dr. Suckley portaged around, and continued on to Lake Pend Oreille.

77. Isaac Stevens, Territorial Governor of Washington, accompanied Dr. Suckley's canoe trip and recounted use of the Clark Fork River by Hudson's Bay Company fur traders, who purportedly used boats to go up the Clark Fork River in Idaho all the way to the vicinity of the Town of Missoula to trade with the Native Americans.

78. However, there is no archaeological evidence, including landing places, vessel wreckage, and artifacts, in or along all of the Relevant Segments of the Clark Fork River.

79. The vast majority of the Clark Fork River is canyon-controlled, with extensive bedrock outcroppings in its bed and banks. The Clark Fork contains shorter stretches of braided, meandering, and anabranching segments.

80. In an 1882 Report, Thomas Symons, an engineer with the Army Corps, referred to Captain George Pease who attempted to take a steamer above Pend Oreille Lake on the Clark Fork River in Idaho. Captain Pease said the river was "exceedingly rough[.]" Symons and Captain Pease described Thompson Falls as a "complete obstruction to navigation." Approximately ten years later, Symons issued a "Preliminary Examination of Clarke Fork of the Columbia River (By

Whatever Named Called).” Symons surveyed the entire 250-mile stretch of the Clark Fork River from the mouth of the Blackfoot to Lake Pend Oreille. Based on this survey, Symons found the Clark Fork to be “a mountain torrential stream, full of rocks, rapids, and falls, and is utterly unnavigable, and incapable of being made navigable except at an enormous cost.”

(1) Eddy Segment (River Mile 235.5 to River Mile 208.1)

(a) Actual Use

81. One historical book published in 1895, Dryden’s Marine History of the Pacific Northwest, described that the steamer “The Missoula” may have run from Thompson Falls to the mouth of the Jocko River for a short time in the early 1880s prior to the completion of the railroad in 1883. Historical accounts indicate that The Missoula did exist, but evidence that The Missoula actually operated above Thompson Falls is unpersuasive. To make the trip described by Dryden, the steamer would have had to navigate Class IV rapids in Alberton Gorge, and Defendants presented persuasive evidence that Dryden’s account misinterpreted an article describing aspirational, not actual, navigation efforts.

82. There was a ferry above Thompson Falls. Montana contends that the ferry demonstrates that the river above Thompson Falls was sufficiently wide and deep for navigation, while Defendants contend that the existence of a ferry indicates that the river was an obstacle to overland navigation rather than a place of

water navigation. Both parties recount an 1884 disaster in which the ferry cable broke, throwing overboard nine passengers who then drowned; two bystanders entered a skiff and drowned in their rescue attempt. Two passengers managed to stay on the ferry boat, which righted itself after going over Thompson Falls, and survived. Montana contends that this incident demonstrates that skiffs were present on this portion of the river and that some crafts could traverse Thompson Falls intact; however, the Court finds that this evidence demonstrates that use of the river in the lower Eddy Segment and Thompson Falls segment was perilous.

83. Montana relies heavily on reports of log drives as evidence of actual use of the Clark Fork River, particularly in the Eddy Segment and over Thompson Falls. However, the most reliable evidence of log drives on the Clark Fork (e.g., historical records) occurred outside of the Relevant Segments, and the most plausible account of a log drive through the Eddy Segment before the Thompson Falls Dam altered the natural condition of the river reportedly occurred in 1905 during a time of high water and was never repeated. Likewise, although there is evidence of bateaus being used on the Clark Fork River during log drives at locations where log jams occurred, this took place far downstream of the Relevant Segments of the Clark Fork River, near the Montana-Idaho border. There is photographic evidence of a log boom in the Eddy Segment immediately above Thompson Falls, but the parties dispute whether this photo indicates that the logs

would later be driven downstream or that the logs were “parked” in the river to avoid them drying out before they were processed. The Court finds that the log drive evidence presented is not sufficient to establish actual use of the Eddy Segment or Thompson Falls Segment.

(b) Susceptibility of Use

84. Three major obstructions to navigability are present in the Eddy Segment: (1) the Eddy Islands; (2) the Plains Rapids; and (3) a 3.5-mile-long reach of mid-channel bars and riffles.

85. The Eddy Islands are a 3.5-mile reach from River Mile 215.5 to River Mile 219 located upstream of a valley floor constriction caused by bedrock outcroppings on both sides of the valley near the mouth of the Thompson River at River Mile 214.5. The Eddy Islands look similar today to how they looked at statehood. Today, however, the Eddy Islands reach is part of the reservoir for the Thompson Falls dam. Current depth measurements thus reflect higher reservoir depths, not depths at time of Statehood prior to dam construction in the river’s natural and ordinary condition. Dr. Harvey persuasively testified that pre-reservoir depths would have been shallower.

86. At a flow of 13,100 cfs (cubic feet per second), which before flow regulation was exceeded 40 percent of the time and exceeded just 28 percent of the

time during the navigation season, there are shallow shoals within the individual channels as seen in Figure 15 of Dr. Harvey's report.

87. Any watercraft attempting to navigate the Eddy Segment would have encountered the Eddy Islands' multiple channels and shallow shoals within a short distance (about 6.5 miles) after entering the river above Thompson Falls.

88. Plains Rapids are three rapids in the Eddy Segment and are still present today. The first rapid is located at River Mile 230.2, the second rapid is located at River Mile 229.8, and the third rapid is located at River Mile 229. Plains Rapids are identified as both Class II and Class III rapids by C. Thompson, *Floating and Recreation on Montana Rivers*.

89. Over their length, the gradient of Plains Rapids was 7.3 fpm. Local gradients ranged from 11 to 22 fpm. These gradients were between 150 and 600 percent steeper than what Roberts and Captain Mellon described as the upper end for economical commercial navigation.

90. Steep gradients increase the velocity of water, which at Plains Rapids were 9.7 fps at high water. This increases the amount of power required for watercraft to travel upstream. Going downstream, the increased velocity would have made it more difficult to avoid the bedrock outcroppings that form Plains Rapids. The gradients at Plains Rapids are comparable to the gradients at Cabinet

Gorge in the Noxon segment of the Clark Fork, where the steamboat relay portaged the river to avoid Cabinet Gorge.

91. The third major obstruction to navigation in the Eddy Segment is a reach of mid-channel bars and riffles from River Mile 232 to River Mile 235.5. The 3.5 mile reach from River Mile 232 to River Mile 235.5 is dynamic, with the active reach between River Mile 233 and River Mile 235.5 driven by sediment deposition during backwater conditions at higher flows resulting from the downstream constriction at River Mile 232. The multi-channel nature of the reach would have contributed to ice-jams during the late winter and early part of the runoff seasons.

92. These mid-channel bars with their associated shallow riffles would have been present during the majority of the navigation season. Steamboats with operating depths of 40-60 inches would have risked running aground in these circumstances. Steamboats would also have had difficulty negotiating the relatively narrow channel.

93. Montana's experts extrapolated data from the distant Plains gage to estimate the depths of the Eddy Segment. The Court finds that such estimates are unreliable, especially as they relate to the Eddy Islands and Plains Rapids, because of significantly differing widths, velocities, and gradient of these river locations compared to the relatively placid single-channel location of the Plains gage.

94. The Clark Fork experiences extreme flow variation, from highs of 63,546 cfs in June to a low of 8,233 cfs in October, with corresponding velocity variation from 6.8 fps in June to 1.6 fps in October. High flows would inhibit navigation in the twists and turns of the Eddy Islands, while low flows would have further exposed rocky shoals in the Eddy Islands.

95. Historical records indicate that in the summer of 1889, a small steamer named the Wilson ran once per week during a single summer season in the Plains Segment of the Clark Fork River upstream of both the Thompson Falls and Eddy Segments, carrying passengers between Paradise and Quinn's Hot Springs. Based on the evidence, the Wilson operated only in the Plains Segment. The geomorphic features of the Plains Segment were more favorable for steamboat operation than those of the Eddy, Thomson Falls and Thomson Landing Segments. The fact that the Wilson was able to navigate the Plains Segment but never traveled to the Eddy or Thompson Falls is additional evidence that the Relevant Segments of the Clark Fork were not susceptible of navigation.

96. Due to steep gradient, high velocity flows, shallow depths, and numerous impediments, the Eddy Segment, in its ordinary and natural condition throughout the entirety of the segment at the time of statehood, was not susceptible of use as a highway for commerce, over which trade and travel could be conducted.

(2) Thompson Falls Segment (River Mile 208.1 to River Mile 207.1)

(a) Actual Use

97. As noted above, there was one instance of a ferry boat accidentally going over Thompson Falls after its cable broke; eleven people (nine passengers and two rescuers) drowned. There is no evidence that any watercraft intentionally were navigated over the Falls. Historical evidence discussed above indicates that Thompson Falls was routinely portaged by surveyors and explorers.

98. The one example Dr. Emmons found of logs being floated west on the Clark Fork proved fatal; the operators lost control of the raft, the raft went over Thompson Falls, and one man drowned. This evidence does not establish actual use of the Thompson Falls segment.

(b) Susceptibility of Use

99. Thompson Falls are formed in bedrock. Over the length of the falls, the bed elevation drops 11.9 feet over a distance of 1100 feet, with an average gradient equivalent to 58 fpm. The drop in elevation over the mile-long segment is 25 feet. Bedrock outcroppings contributed further to the hazards of attempting to navigate watercraft over the falls.

100. All the expert fluvial geomorphologists in this case agreed Thompson Falls is not navigable. Due to the steep gradient, high velocity flows, and

numerous impediments, the Thompson Falls Segment, in its ordinary and natural condition was not susceptible of use at statehood in its ordinary and natural condition as a highway for commerce, over which trade and travel could be conducted.

(3) Thompson's Landing Segment (River Mile 207.1 to
River Mile 204.5)

(a) Actual Use

101. In 1825, John Work "traveled by canoe up the Pend Oreille River and across Lake Pend Oreille" then "continued canoeing up the Clark Fork River to Cabinet Falls" where he "probably" portaged. Work "continued by canoe upriver to Thompson Falls, which he also portaged." Work mostly traveled by horse, ending his canoe travels at Thompson Falls. Dr. Emmons opined that there was no evidence that John Work ever went upstream of Thompson Falls.

102. David Thompson, a literate fur trapper, recorded that he had been trapping east and north of Thompson Falls, and went to Saleesh House on the Clark Fork River to meet with members of the Northwest Company in 1811. David Thompson reported that he constructed a canoe at Saleesh House and floated down the Clark Fork River from Thompson Falls to Lake Pend Oreille.

103. The Court assigns little weight to this evidence because it is unclear where Work's or Thompson's portages around Thompson Falls started or ended

(i.e., within or outside of the Thompson's Landing segment), and these instances of navigation took place more than 60 years before Montana's statehood; the lack of more recent reports of navigation on the segment suggest that customary modes of trade and travel and/or commercial demand had changed significantly by the time of statehood, which is further supported by the evidence discussed below of steamboat navigation stopping just downstream of this segment.

(b) Susceptibility of Use

104. Thompson's Landing was situated in the vicinity of the short-lived town of Shannonville, which newspapers described as being either three or four miles "below Thompson Falls."

105. Steamboat traffic stopped at Thompson's Landing, which Defendants attribute to bedrock outcroppings immediately upstream. Bedrock outcroppings are found between River Mile 206.5 and 207.1. Bedrock outcroppings are also present in the bed and banks of the river at River Mile 204.8 that is located in a narrow canyon section just above the historical head of navigation at Thompson's Landing. These bedrock outcroppings acted as barriers to further navigation upstream.

106. The evidence that steamboat traffic stopped before it traversed this segment and the lack of evidence contemporaneous with statehood that other watercraft navigated this segment persuades the Court that the Thompson's

Landing Segment was not susceptible of use at statehood in its ordinary and natural condition as a highway for commerce, over which trade and travel could be conducted.

C. Madison River

107. John L. Corbett of the United States General Land Office surveyed the Madison in 1868 and 1870 and described the Madison as rapid, shallow, and rocky.

108. No party presented evidence of watercraft use of any kind on the Madison before or at the time of statehood, including for historical exploration or experimentation.

109. There is some evidence of one or two post-statehood log drives on portions of the Madison River outside of the Relevant Segments, from the West Fork of the Madison River to a sawmill near Varney Bridge in 1913 and possibly in 1914.

110. There is an absence of archaeological evidence, including landing places, vessel wreckage, and artifacts, in or along the Relevant Segments of the Madison.

111. Post-statehood historical records reflect a consensus that the Madison had never been navigated for commercial use.

112. In sum, there is no concrete evidence of actual use of the Relevant Segments of the Madison for navigation at the time of statehood. Accordingly, the segment-by-segment analysis will discuss only susceptibility.

(1) Headwaters/West Yellowstone Basin Segment (Upstream of River Mile 112.5)

113. Within the West Yellowstone Basin to the upstream end of Hebgen Lake at River Mile 125.1, the Madison River is a highly sinuous meandering channel. The river is also very shallow in this segment. Mean depths in the West Yellowstone Basin were 1.0 feet or less during 75 percent of the year. The majority of the Hebgen Reservoir is found in the West Yellowstone Basin Segment.

114. Depths of less than two feet or less than one foot for the majority of the year would not have been navigable at the time of statehood by the upland steamboat. The sinuous nature of the channel and slow current would have made water travel in the West Yellowstone Segment inefficient for craft other than steamboats. Those craft traveled only as fast as the flow and would have been required to zigzag back and forth down the valley.

115. Due to shallow depths and inefficient travel, the Headwaters/West Yellowstone Basin Segment was not susceptible of use at statehood in its ordinary

and natural condition as a highway for commerce, over which trade and travel could be conducted.

(2) Upper Canyon Segment (River Mile 112.5 to River Mile 101)

116. The Upper Canyon Segment is canyon-confined and steep, with a gradient of 18.7 fpm. The riverbed in the Upper Canyon Segment is made of coarse material, including cobbles and boulders. The river continues to meander in this segment.

117. The steep gradient in the Upper Canyon Segment would have increased the turbulence in the water, drawing watercraft deeper into the water. The coarse bed material in the Upper Canyon Segment meant that if the turbulent conditions caused the watercraft to strike bottom or veer off course, the consequences could have included puncturing the watercraft's hull.

118. A modern photograph of the Upper Canyon Segment at River Mile 106.7 taken at a flow of 902 cfs shows the boulder-dominated bed material and generally shallow nature of the channel; this photograph illustrates the poor conditions for navigation present during most of the navigation season as they were taken at the 30 percent exceedance flow during the navigation season.

119. Due to steep gradient, shallow depths, and numerous impediments, the Upper Canyon Segment was not susceptible of use at statehood in its ordinary and

natural condition as a highway for commerce, over which trade and travel could be conducted.

(3) Anabranching Segment (River Mile 60 to River Mile 42.5)

120. The Anabranching Segment of the river is characterized by anabranching channels where the river's flow divides between multiple relatively stable islands.

121. Historical maps of the portion of the Anabranching Segment now inundated by Ennis Lake confirm that the anabranching channels continued to the head of Bear Trap Canyon.

122. The complex multi-channel topography of this segment meant that even if a channel could be discerned, a traveler could be stranded by multiple threads between the main channel and the dry bank, and thus there would be no practical place to deliver commercial goods before reaching Bear Trap Canyon.

123. The anabranching channels combined with the steep gradient presented additional obstacles to navigation. The Anabranching Segment had a steep gradient of 19.5 fpm. These steep gradients, and attendant increase in velocity, would have made it difficult for watercraft to navigate around the meandering anabranching channels. The steep gradient would have caused craft to lunge farther below the surface than the vessel's draft, which was a liability given

the shallows depths of less than two feet at various points of the Anabranching Segment.

124. Due to shallow depths, and numerous impediments, the Anabranching Segment was not susceptible of use at statehood in its ordinary and natural condition as a highway for commerce, over which trade and travel could be conducted.

(4) Bear Trap Canyon Segment (River Mile 42.5 to River Mile 33)

125. Through this 9.5 mile long segment, the Madison River is bedrock and canyon-confined.

126. The Bear Trap Canyon segment has a gradient of 20.6 ft/mile that contains a number of Class III and IV rapids. The steep gradient helps create the conditions for those rapids.

127. Jason Cajune, an expert boatmaker and river guide, testified that he had navigated a modern dory through a Class V rapid, and the dory's predecessor at the time of statehood—a bateau—could effectively navigate Class III and IV rapids. Although Mr. Cajune's testimony about the characteristics of historical boats was informative, the Court assigns minimal weight to his opinions as to an average statehood-era Montanan's ability to navigate Class III, IV, and V rapids in such historical boats because of his tremendous personal experience, combined

with his admission that even an oarsman as talented and experienced as himself has at times failed to navigate such high-intensity rapids in modern watercraft.

128. Historical photographs of Bear Trap Canyon show that, like today, around the time of statehood a significant amount of rock fall was scattered throughout the channel. This rock fall and attendant rapids come down from the canyon walls.

129. Even Montana's geomorphological expert on the Madison River "did not make a statement about navigability in the late 1800s on Bear Trap Canyon."

130. The steep gradient and velocity of the river would have made hitting rock fall and other snags in the river difficult to avoid. The wooden hulls of steamboats and other vessels would have been compromised and precluding commercial navigation. For these reasons, the Court finds the Bear Trap Canyon Segment was not susceptible of use at statehood in its ordinary and natural condition as a highway for commerce, over which trade and travel could be conducted.

CONCLUSIONS OF LAW

VI. JURISDICTION AND VENUE

1. The Court has jurisdiction over this action pursuant to 28 U.S.C. § 1331 (federal question); 28 U.S.C. § 2409(a) (Quiet Title Act); 28 U.S.C. § 2201 (declaratory relief); 28 U.S.C. § 1346(f) (conferring upon federal district courts

exclusive jurisdiction over actions to quiet title to real property in which the United States claims an interest); and 28 U.S.C. § 1367(a) (supplemental jurisdiction over state law claims).

2. Venue is proper in this Court because the lands in dispute are located within the District of Montana. 28 U.S.C. §1391(b)(2). Venue is further proper in the Helena Division because certain riverbeds at issue lie in Lewis and Clark County. D. Mont. L.R. 1.2(c)(4), 3.2(b).

VII. THE EQUAL FOOTING DOCTRINE

3. The 1889 Enabling Act admitted Montana “into the Union on an equal footing with the original States.” 25 Stat. 676, 679 (1889); U.S. Const. art. IV, § 3.

4. Under the Equal Footing Doctrine, “each State ‘receives absolute title to the beds of navigable waterways within its boundaries upon admission to the Union.’” (Doc. 171 at 11 (quoting *Oregon v. Corvallis Sand & Gravel Co.*, 429 U.S. 363, 372 (1977)).) “Under the Equal Footing Doctrine, navigability at the time the State joined the Union determines whether title passed to the State[.]” (*Id.*) “Upon statehood, the State gains title within its borders to the beds of waters then navigable . . . [and] the United States retains title vested in it before statehood to land beneath waters not then navigable . . . to be transferred or licensed if and as it chooses.” *PPL*, 565 U.S. at 591.

5. Congress recognizes Montana owns the lands beneath navigable water bodies within its boundaries. 43 U.S.C. § 1311(a).

6. Thus, Montana’s claims in this lawsuit hinge on whether the “lands at issue did pass under the equal-footing doctrine[.]” (Doc. 171 at 13 (quoting *Corvallis Sand & Gravel Co.*, 429 U.S. at 372).) “State law is inapplicable to the determination of this question.” (*Id.* at 14). State court navigability decisions purporting to apply federal law in a manner that improperly favors title passing to the state are unpersuasive authority. As the U.S. Supreme Court stated in this case, “[i]t is not for a State by courts or legislature, in dealing with the general subject of beds of streams, to adopt a retroactive rule for determining navigability which . . . would enlarge what actually passed to the State, at the time of her admission, under the constitutional rule of equity” that controls navigability for title determinations. *PPL*, 565 U.S. at 604–05 (internal quotation marks and citations omitted).

VIII. BURDEN OF PROOF

7. Montana appropriately concedes that it bears the burden of proof, by a preponderance of the evidence, that the riverbed lands at issue were navigable in fact at the time of statehood. (Doc. 239 at 8.)

IX. STATE TRUST LAND

8. Montana holds riverbeds as “public lands of the state that are held in trust for the people as provided in Article X, section 11, of the Montana

Constitution.” Mont. Code Ann. § 77-1-102(3); Mont. Code Ann. § 77-1-101(8), (9) (defining “state land” and “state trust land”); Mont. Const. art. X, § 11.

9. Montana may not dispose of any interest in riverbeds held in the state trust lands “except in pursuance of general laws providing for such disposition, or until the full market value of the estate or interest disposed of, to be ascertained in such manner as may be provided by law, has been paid or safely secured to the state.” Mont. Const. art. X, § 11(2); *see also PPL Montana, LLC v. State*, 2010 MT 64, ¶ 117, *rev’d on other grounds*, 565 U.S. 576 (2012).

10. Montana may not sell state lands constituting “power sites capable of developing hydroelectric energy in commercial quantities” but may issue a lease or license for the development of power sites and the distribution, use, and disposition of the electrical energy generated on such sites. Mont. Code Ann. §§ 77-4-201, 77-4-202 (defining “power site”). The rental payment to the state for power sites must be paid annually or semiannually, and the rental may not be less than the full market value of the estate or interest disposed of through the granting of the lease or license. Mont. Code Ann. § 77-4-208. Montana has brought this case pursuant to these constitutional and statutory obligations, seeking to obtain the full market value of any navigable riverbed occupied by hydroelectric dam projects formerly owned by Talen and currently owned by NorthWestern.

11. As previously indicated, the parties stipulated to the bifurcation of this case into two phases. Phase I addresses all claims or defenses relating or pertaining to navigability at the time of statehood. This Order addresses those issues. Phase II will address all remaining claims or defenses relating to damages.

X. NAVIGABILITY FOR TITLE

12. In *PPL*, the U.S. Supreme Court reiterated that navigability for title is determined by whether the river is navigable in fact:

Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water.

PPL, 565 U.S. at 592 (quoting *The Daniel Ball*, 77 U.S. at 563).

13. In *PPL*, the Supreme Court confirmed that courts must analyze navigability “on a segment-by-segment basis to assess whether the segment of the river, under which the riverbed in dispute lies, is navigable or not.” *Id.* at 593. *PPL* further explained that the segment-by-segment approach “must be sensibly applied,” and avoid “parcels of exceedingly small size, or worthlessness of the parcels due to overdivision.” *Id.* at 596. The Court must adopt segments that are “both discrete, as defined by physical features of navigability or nonnavigability, and substantial, as a matter of administrability for title purposes.” *Id.* at 597. In determining a discrete segment, the Court should focus on physical conditions

affecting navigability such as size (both depth and width of channel), sediment and bedrock material, and flow and gradient. The final determination of segmentation is tied to navigability, rather than solely based on physical conditions on topographical or geographical indicators that are relevant to, but not necessarily dispositive of, determining where navigability begins or ends. *Id.* at 595.

14. Navigability for title is determined “at the time of statehood . . . based on the ‘natural and ordinary condition’ of the water.” *Id.* at 592.

15. Navigability for title is distinct from navigability determinations in the context of admiralty jurisdiction (which extends to water routes made navigable if not formerly so), federal regulatory authority (which extends to newly navigable waters, formerly navigable waters, and waters that may become navigable with reasonable improvements), and the federal commerce power (which focuses on navigation involving interstate commerce). *Id.* at 592–93. Where admiralty, regulatory, or commerce power cases determine navigability-in-fact based on a river’s natural and ordinary condition at statehood, the Court can rely on applications of the navigability-in-fact test in admiralty and regulatory cases for determining travel, so long as it accounts for the additional elements in each test. *See id.*

16. The best evidence of navigability-in-fact is evidence of the actual use of the Relevant Segments as highways for commerce at the time of statehood. *Id.*

at 600–01. But the absence of use does not preclude a finding of navigability: “[t]he evidence of the actual use of streams, and especially of the extensive and continued use for commercial purposes may be most persuasive, but, where conditions of exploration and settlement explain the infrequency or limited nature of such use, the susceptibility to use as a highway of commerce may still be satisfactorily proved.” *Utah*, 283 U.S. at 82.

A. Actual Use

17. Actual use of a river for navigability “does not depend upon the mode by which commerce is conducted upon it, whether by steamers, sailing vessels or flat boats, nor upon the difficulties attending navigation, but upon the fact whether the river in its natural state is such that it affords a channel for useful commerce.” *Brewer-Elliott Oil & Gas Co. v. United States*, 260 U.S. 77, 86 (1922).

18. Geographic expeditions by government officials, or other travel by “boats of various sorts, including rowboats, flatboats, steamboats, motorboats, barges and scows, some being used for exploration, some for pleasure, some to carry passengers and supplies, and others in connection with prospecting, surveying and mining operations,” qualify as actual use. *Utah*, 283 U.S. at 82. Limited travel at or near statehood by “[e]arly visitors and settlers in that vicinity . . . employing the small boats of the period for the purpose” of travel and merchants “sending for and bringing in their supplies” qualifies as actual use. *Holt*

State Bank, 270 U.S. at 57. Lumber rafts that carry cargo, and boats that are used to manage log drives, may qualify as actual use. Occasional log drives only in times of high water do not. *Utah*, 283 U.S. at 87 n.12; *see also Oregon*, 672 F.2d at 794–96 (concluding log drives were not “occasional” when they took place for several months in each of seventeen years).⁸

19. There are cases which hold that a river’s use by Indigenous Peoples at or near statehood, even if recorded by oral tradition rather than settler historians, can qualify as actual use. *Nw. Steelheaders Ass’n, Inc. v. Simantel*, 112 P.3d 383, 394–95 (Or. Ct. App. 2005); *Puyallup Tribe of Indians v. Port of Tacoma*, 525 F. Supp. 65, 71–72 (W.D. Wash. 1981), *aff’d*, 717 F.2d 1251 (9th Cir. 1983).

B. Susceptibility of Use

20. “[R]iver segments are navigable not only if they ‘[were] used,’ but also if they ‘[were] susceptible of being used,’ as highways of commerce at the time of statehood.” *PPL*, 565 U.S. at 600 (quoting *Utah*, 283 U.S. at 76).

Susceptibility of use establishes navigability for title and may be proven “by physical characteristics and experimentation” and second “by the uses to which the

⁸ There was evidence presented of log drives over the Thompson Falls on the Clark Fork, and log drives in the Big Belt Segment on the Missouri. The holding in *PPL* limits this Court to consideration of commerce carried out in watercraft. Because loose logs are not watercraft, the transport of logs by water does not constitute navigability for purposes of determining title under the equal footing doctrine. Thus, the Court does not consider, as a matter of law, the mere transport of logs down a river as actual use. Manned boats used to manage a log drive, or log rafts transporting cargo would, in the Court’s opinion, constitute actual use.

streams have been put.” *Utah*, 283 U.S. at 83. “The question of that susceptibility in the ordinary condition of the rivers, rather than of the mere manner or extent of actual use, is the crucial question.” *Id.* at 82.

21. Physical characteristics relevant to susceptibility of use include the channel and surrounding landscape, channel width, gradient, obstructions, rapids, flows, and resulting depths for navigation. *Id.* at 77–80.

22. Use of modern watercraft, including recreational uses, may qualify for susceptibility of use only when “(1) the watercraft are meaningfully similar to those in customary use for trade and travel at the time of statehood; and (2) the river’s poststatehood condition is not materially different from its physical condition at statehood.” *PPL*, 565 U.S. at 601. The Court has already discussed the use of modern watercraft and concluded that they do not meet the first factor of this test, and thus the use of modern watercraft will not be considered. *Supra*, ¶¶ 20–21.

C. Ordinary and Natural Condition

23. “For state title under the equal-footing doctrine, navigability is determined at the time of statehood [and] based on the ‘natural and ordinary condition’ of the water.” *PPL*, 565 U.S. at 592. Whether a relevant segment is in its “natural and ordinary condition” depends on whether improvements by human intervention made the river “easier to navigate” than it otherwise would have been

at time of statehood. *Id.* at 602. Proof that a segment has dams on it, or has dams on tributaries that flow into it, which have regulated the river’s “high flow periods [and] low flow periods” and made the river “easier to navigate,” is “meaningful evidence” that the river is not in its natural and ordinary condition. *Id.*

24. Seasonal flows support navigability for title when its use of susceptibility of use is “not confined to exceptional conditions or short periods of temporary high water.” *Utah*, 283 U.S. at 87. Mere presence of “impediments to navigation” such as sandbars or rapids do not “make a river non-navigable.” *Id.* at 86. For example, where sandbars in a lake “prevented boats from moving readily all over it, but the bars could be avoided by keeping the boats in the deeper parts or channels,” the Supreme Court concluded that the lake was navigable. *Holt State Bank*, 270 U.S. at 57.

25. “In order to be navigable, it is not necessary that [a river] should be deep enough to admit the passage of boats at all portions of the stream.” *St. Anthony Falls Water-Power Co. v. Bd. of Water Comm’rs*, 168 U.S. 349, 359 (1897); *Utah*, 283 U.S. at 85 (distinguishing a “short interruption of navigability in a stream otherwise navigable”). “[T]he law might find some nonnavigable segments so minimal that they merit treatment as part of a longer, navigable reach for purposes of title under the equal-footing doctrine,” where a “*de minimis* exception to the segment-by-segment approach would be those related to principles

of ownership and title, such as inadmissibility of parcels of exceedingly small size, or worthlessness of the parcels due to overdivision.” *PPL*, 565 U.S. at 596. On the other hand, evidence that a river segment required a portage “[i]n most cases” is sufficient to defeat a finding of navigability when “[i]t demonstrates the need to bypass the river segment, all because that part of the river is nonnavigable.” *Id.* at 597.

D. Customary Modes of Trade and Travel

26. Courts seeking to determine navigability for title must determine whether, at statehood, the relevant segment of the river could have been used as a highway for commerce, by the “customary modes of trade and travel on water” available at that time. *PPL*, 565 U.S. at 601. Navigability “concerns the river’s usefulness for ‘trade and travel,’ rather than for other purposes.” *Id.* at 600. “[T]o give [a river] the character of a navigable stream, it must be generally and commonly useful to some purpose of trade or agriculture.” *United States v. Rio Grande Dam & Irrigation Co.*, 174 U.S. 690, 698–99 (1899).

27. For title navigability, “evidence must be confined to that which shows the river could sustain the kinds of commercial use that, as a realistic matter, might have occurred at the time of statehood. Navigability must be assessed as of the time of statehood, and it concerns the river’s usefulness for ‘trade and travel’ rather than for other purposes.” *PPL*, 565 U.S. at 600.

28. “[A] river need not be susceptible of navigation at every point during the year, [but] neither can that susceptibility be so brief that it is not a commercial reality.” *Id.* at 602–03.

XI. NAVIGABILITY FOR TITLE TO THE SEGMENTS AT ISSUE

A. The Missouri River

29. The Big Belt Mountains Segment, running from River Mile 2254.2 to River Mile 2208, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana’s statehood. Accordingly, the Big Belt Mountains Segment was not navigable for title.

30. The Sun River to Black Eagle Falls Segment, running from River Mile 2121.7 to River Mile 2117.9, was partially navigated and otherwise susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana’s statehood. Accordingly, the Sun River to Black Eagle Falls Segment was navigable for title.

31. The Belt Creek to Big Falls Segment, running from River Mile 2109.6 to River Mile 2101.5, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana’s statehood. Accordingly, the Big Falls to Belt Creek Segment was not navigable for title.

B. The Clark Fork River

32. The Eddy Segment, running from River Mile 235.5 to River Mile 208.1, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana's statehood. Accordingly, the Eddy Segment was not navigable for title.

33. The Thompson Falls Segment, running from River Mile 208.1 to River Mile 207.1, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana's statehood. Accordingly, the Thompson Falls Segment was not navigable for title.

34. The Thompson's Landing Segment, running from River Mile 207.1 to River Mile 204.5, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana's statehood. Accordingly, the Thompson's Landing Segment was not navigable for title.

C. The Madison River

35. The Headwaters/West Yellowstone Basin Segment, running upstream of River Mile 112.5, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water

at the time of Montana's statehood. Accordingly, the Headwaters/West Yellowstone Basin Segment was not navigable for title.

36. The Upper Canyon Segment, running from River Mile 112.5 to River Mile 101, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana's statehood. Accordingly, the Upper Canyon Segment was not navigable for title.

37. The Anabranched Channel Segment, running from River Mile 60 to River Mile 42.5, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana's statehood. Accordingly, the Anabranched Channel Segment was not navigable for title.

38. The Bear Trap Canyon Segment, running from River Mile 42.5 to River Mile 33, was neither navigated or susceptible of navigation in its natural and ordinary condition in the customary modes of trade and travel on water at the time of Montana's statehood. Accordingly, the Bear Trap Canyon Segment was not navigable for title.

ORDER

Based upon the foregoing findings and conclusions, IT IS ORDERED that:

1. Pursuant to the Federal Quiet Title Act, 28 U.S.C. § 2409(a), title is hereby quieted to Montana for the riverbed lands within the Sun River to Black Eagle Falls Segment of the Missouri River, running from River Mile 2121.7 to River Mile 2117.9, as described herein.

2. Pursuant to the Equal Footing Doctrine, title is also hereby quieted against Talen and Northwestern Energy to Montana for the riverbed lands lying between the ordinary low water marks within the Sun River to Black Eagle Falls Segment of the Missouri River, running from River Mile 2121.7 to River Mile 2117.9, as described herein.

3. Pursuant to the Montana Constitution, Mont. Const. art. X, § 11, and statutes enacted thereunder, Talen and Northwestern must compensate Montana for the past, present, and future use of the riverbeds within Sun River to Black Eagle Falls Segment of the Missouri River, running from River Mile 2121.7 to River Mile 2117.9, as described herein, to which Montana took title at statehood, in an amount to be determined in Phase II of this case.

4. Pursuant to the Federal Quiet Title Act, 28 U.S.C. § 2409(a), title is hereby quieted to the United States for the riverbed lands within all other Disputed Reaches as described herein.

5. Pursuant to the Equal Footing Doctrine, title is also hereby quieted against Montana to Talen and Northwestern for the riverbed lands lying between

the ordinary low water marks within all other Disputed Reaches as described herein.

DATED this 25th day of August, 2023.



Dana L. Christensen, District Judge
United States District Court